

FORM PTO-1449  
(REV. 7-80)  
(Title Amended 3/83)

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

124698-1

SERIAL NO.

10/720,045

INFORMATION DISCLOSURE STATEMENT BY APPLICANT--

LIST OF ITEMS

(Use several sheets if necessary)

Applicant

Ronald Scott Bunker et al.

Filing Date

Herewith

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3745

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
NN	AA 6 6 0 7 3 5 5	08/19/03	Cunha et al.			
	AB 5 5 7 7 5 5 5	11/26/96	Hisajima et al.			
	AC 5 6 9 0 4 7 2	11/25/97	Lee			
	AD 6 5 0 4 2 7 4	01/07/03	Bunker et al.			
	AE 5 3 7 0 4 9 9	12/06/94	Lee			
	AF 6 4 0 2 4 7 0	01/11/02	Kvasnak et al.			
	AG 6 0 9 8 3 9 7	08/08/00	Glezer et al.			
	AH 3 6 6 4 9 2 8	05/23/72	Roberts			
	AI 4 6 9 0 2 1 1	09/01/87	Kuwahara et al.			
↓	AJ 3 2 2 9 7 6 3	01/18/66	Rosenblad			
NN	AK 3 8 9 9 8 8 2	08/19/75	Parker			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES No
NN	AL 1 1 1 1 1 9 0	06/27/01	EP			
	AM 1 6 4 9 0 1 A	06/19/01	JP			
	AN 2 8 0 3 9 0	12/10/86	JP			
↓	AO 2 1 7 9 9 4	08/19/97	JP			
NN	AP 8 1 1 0 0 1 2	04/30/96	JP			

OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)

NN	AR	Patent Application, Ronald Scott Bunker et al., Serial Number 10/462,755, filed June 6, 2002, Docket Number - RD29163.
NN	AS	Patent Application, Ronald Scott Bunker, Serial Number 10/065,115, filed September 18, 2002, Docket Number - RD29461.
NN	AT	US20030086785 A1, Bunker, "Cooling passages and methods of fabrication," Published 05/08/2003.

EXAMINER

/Ninh Nguyen/

DATE CONSIDERED

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NN	BA 4 1 5 8 9 4 9	06/26/79	Reider			
	BB 4 8 3 8 0 3 1	06/13/89	Cramer			
	BC 4 1 8 4 3 2 6	01/22/80	Pane, Jr. et al.			
	BD 5 3 5 3 8 6 5	10/11/94	Adiutori et al.			
	BE 5 4 6 0 0 0 2	10/24/95	Correa			
	BF 5 6 5 1 6 6 2	07/29/97	Lee et al.			
	BG 5 7 5 8 5 0 3	06/02/98	DuBell et al.			
	BH 6 1 3 4 8 7 7	10/24/00	Alkabie			
	BI 6 2 3 7 3 4 4	05/29/01	Lee			
	BJ 6 3 3 4 3 1 0	01/01/02	Sutcu et al.			
NN	BK 6 4 0 8 6 2 9	06/25/02	Harris et al.			

## FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES No
BL						
BM						
BN						
BO						
BP						

## OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)

NN	BR	US20030203259 A1, Bunker, "Fluid passages for power generation equipment," Published 10/30/2003.
NN	BS	Patent Application, Ronald Scott Bunker, Serial No.10/064,605, filed July 30, 2002, Document Number 124626.
NN	BT	Patent Application, Ronald Scott Bunker, Serial No. 10/065,495, filed October 24, 2002, Document Number RD29577.

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NN	CA 6 4 1 2 2 6 8	07/02/02	Cromer et al.			
	CB 6 4 9 4 0 4 4	12/17/02	Bland			
	CC 6 5 2 6 7 5 6	03/04/03	Johnson et al.			
	CD 5 3 6 1 8 2 8	11/08/94	Lee et al.			
	CE 5 4 2 1 1 5 8	06/06/95	Stenger et al.			
	CF 5 6 5 1 6 6 2	07/29/97	Lee et al.			
	CG 5 6 8 1 1 4 4	10/28/97	Spring et al.			
	CH 5 6 6 0 5 2 5	08/26/97	Lee et al.			
	CI 5 6 9 5 3 2 1	12/09/97	Kercher			
✓	CJ 5 7 2 4 8 1 6	03/10/98	Ritter et al.			
NN	CK 5 7 3 8 4 9 3	04/14/98	Lee et al.			

## FOREIGN PATENT DOCUMENTS

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	CL						
	CM						
	CN						
	CO						
	CP						

## OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)

NN	CR	Patent Application, Ronald Scott Bunker et al., Serial Number 10/162,756, filed June 6, 2002, Docket Number RD29188.
NN	CS	Patent Application, Ronald Scott Bunker, Serial Number 10/065,814, filed November 22, 2002, Docket Number RD29580.
NN	CT	Patent Application, Ronald Scott Bunker, Serial Number 10/301,672, filed November 22, 2002, Docket Number 120497.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT-- <u>LIST OF ITEMS</u>  (Use several sheets if necessary)				Applicant <div style="text-align: center;">Ronald Scott Bunker et al.</div>			
				Filing Date <div style="text-align: center;">Herewith</div>		Group <div style="text-align: center;">3745</div>	
U.S. PATENT DOCUMENTS							
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NN	DA 5 7 9 7 7 2 6	08/25/98	Lee				
	DB 5 8 2 2 8 5 3	10/20/98	Ritter et al.				
	DC 5 9 3 3 6 9 9	08/03/99	Ritter et al.				
	DD 5 9 7 5 8 5 0	11/02/99	Abuaf et al.				
	DE 6 1 9 0 1 2 0	02/20/01	Thatcher et al.				
	DF 5 4 0 2 4 6 4	03/28/95	Schenk et al.				
	DG 6 4 6 8 6 6 9	10/22/02	Hasz et al.				
✓	DH 1 8 4 8 3 7 5	03/08/32	Muir				
NN	DI 2 9 3 8 3 3 3	05/31/60	Wetzler				
	DJ						
	DK						
FOREIGN PATENT DOCUMENTS							
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	No
	DL						
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OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)							
NN	DR	Patent Application, Ronald Scott Bunker, Serial Number 10/065,108, filed September 18, 2002, Docket Number RD29153.					
	DS						
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EXAMINER				DATE CONSIDERED			
/Ninh Nguyen/				05/02/2006			
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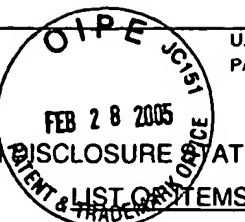
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT--



Applicant

Ronald Scott Bunker et al.

Filing Date

November 19, 2003

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### U.S. PATENT DOCUMENTS

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						YES	No
	AL						
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	AP						

### OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)

NN	AR	M. Ya Belen'kii et al., "Experimental Study of the Thermal and Hydraulic Characteristics of Heat-Transfer Surfaces Formed by Spherical Cavities," II. Polzunova Cent. Scientific Research, Translated from Teplofizika Vysokikh Temperatur, Vol.29, No.6, 1992 Plenum Pub. Corp., pp. 928-933.
NN	AS	Belen-kiy et al., "Heat Transfer Augmentation Using Surfaces Formed by a System fo Spherical Cavities," ISSN1064-2269/93/0002-0196, Heat Transfer Research, Vol. 25, No. 2, 1993, pp.196-203
NN	AT	Kesarev et al., "Convective Heat Transfer in Turbulized Flow Past a Hemispherical Cavity," Heat Transfer Research, Vol. 25, No. 2, 1993, pp. 156-160.

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Ronald Scott Bunker et al.

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November 19, 2003

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U.S. PATENT DOCUMENTS

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						YES	No
	BL						
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	BO						
	BP						

OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)

NN	BR	N. Syred et al., "Effect of Surface Curvature on Heat Transfer and Hydrodynamics within a Single Hemispherical Dimple," Paper No. 2000-GT-236, Proceedings of ASME Turboexpo 2000, May 8-11, 2000, Munich Germany, pp. 1-6.
NN	BS	H. K. Moon et al., "Channel Height Effect on Heat Transfer and Friction in a Dimpled Passage," IGTI Turbo Expo, Paper No. 99-GT-163, Indianapolis, pp. 1-8
NN	BT	C. Carcasi et al., "Heat Transfer and Pressure Drop Evaluation in Thin Wedge-Shaped Trailing Edge," Paper No. GT-2003-38197, IGTI Turbo Expo, June 16-19 Atlanta, Georgia, pp. 111-122.

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		Filing Date November 19, 2003	Group <del>3740</del> 3745

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	CK					

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						YES	No
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## OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)

NN	CR	M. K. Chyu et al., "Convective Heat Transfer of Cubic Fin Arrays in a Narrow Channel," Journal of Turbomachinery, April 1998, Vol. 120, pp. 362-367.
NN	CS	N. Zhang et al., "Heat Transfer and Friction Loss Performance in Flow Networks with Multiple Intersections," Experimental Heat Transfer, Vol. 6, 1993. pp. 243-257.
NN	CT	V. N. Afanas'Yev et al., "Thermohydraulics of Flow Over Isolated Depressions (Pits, Grooves) in a Smooth Wall," Heat Transfer Research, ISSN 1064-2285/93/0001-0022, Vol. 25, No. 1, 1993, pp. 22-56.

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	DA					
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	DL							
	DM							
	DN							
	DO							
	DP							

OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)

NN	DR	V. N. Afanas'yev et al., "Heat Transfer and Friction on Surfaces Contoured by Spherical Depressions," Heat Transfer Research, Vol. 24, No. 1, 1992. pp. 24-105.
NN	DS	V. N. Afanasyev et al., "Turbulent Flow Friction and Heat Transfer Characteristics for Spherical Cavities on a Flat Plate," Experimental Thermal and Fluid Science, 1993, Vol. 7, pp. 1-8.
NN	DT	D. E. Metzger et al., "Developing Heat Transfer in Rectangular Ducts with Staggered Arrays of Short Pin Fins", Journal of Heat Transfer, Vol. 104, November 1982, pp. 100-706.

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EP									

OTHER INFORMATION (Including Author, Title, Date, Pertinent pages. Etc.)		
NN	ER	K. Takeishi et al., "HEAT TRANSFER CHARACTERISTICS OF A FLOW PASSAGE WITH LONG PIN FINS AND IMPROVING HEAT TRANSFER COEFFICIENT BY ADDING TURBULENCE PROMOTERS ON A ENDWALL, " Paper No. 2001-GT-178, IGTI Turbo Expo, New Orleans, pp.
NN	ES	S. Anzai et al., "Effect of the Shape of Turbulence Promoter Ribs on Heat Transfer and Pressure Loss Characteristics", Bulletin of the Gas Turbine Society of Japan, 1992.
NN	ET	

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